

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/914,305	DALL'OCCO ET AL.
	<b>Examiner</b>	<b>Art Unit</b>

Rip A. Lee

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTO-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS**. This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to April 9, 2004.
2.  The allowed claim(s) is/are 1-7, 9-15, 20, 21, 23 and 25-27.
3.  The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All
  - b)  Some\*
  - c)  None
 of the:
  1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

#### Attachment(s)

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftsperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application (PTO-152)
6.  Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_.

## DETAILED ACTION

This office action follows a response filed on April 9, 2004. Applicants have amended claims 1, 25, and 26.

### *Allowable Subject Matter*

The following is an examiner's statement of reasons for allowance: Claims 1-7, 9-15, 20, 21, 23, and 25-27 are allowed over the closest reference, WO98/22486 to Ewen *et al.* and Kraak *et al.* (*Tetrahedron*, 1968).

The present invention is drawn to a process for preparation of polymers using a catalyst comprising a metallocene represented by general formula (I) (see claim for details). The metallocene contains a cyclopentadienyl moiety and a cyclopentadithiophene moiety bridged by a (un)substituted methyldene group. The distinguishing feature of the metal complex lies in cyclopentadithiophene-bound substituents R<sup>7</sup> and R<sup>8</sup>, at least one of which is not hydrogen. The invention encompasses the metallocene and the ligands themselves. Other aspects of the invention relates to synthetic methods for making cyclopentadithiophenes.

Ewen *et al.* discloses a process for polymerization of olefins in the presence of a catalyst derived from isopropylidene (3-alkylcyclopentadienyl)(7-cyclopentadithiophene) zirconium dichloride complexes and MAO. The text contemplates generically use of ligand combinations such that C<sub>2</sub> or C<sub>s</sub> symmetric metallocenes may be prepared therefrom (*i.e.*, structures designated structures [g] and [l] on page 36). However, there is no specific example illustrating a cyclopentadithiophene ligand that substituted in a manner such that at least one of R<sup>7</sup> and R<sup>8</sup> is not hydrogen, as presently claimed. While

it may be argued that the specific embodiment of the present claims is subsumed under the broadest disclosure of Ewen *et al.*, it is maintained that one of ordinary skill in the art would not have found it obvious to practice the process of the present claims. That is, the skilled artisan would not have envisioned immediately the claimed invention based on the teachings of the prior art. To support this notion, Applicants have demonstrated that catalysts of the present invention offer higher activities compared with those of the prior art.

Kraak *et al.* discloses a process for preparing cyclopentadithiophenes, but it does not teach or make obvious the synthetic steps outlined in the present claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

ral

July 9, 2004



DAVID W. WU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700